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Recent and future liquid metal experiments on homogeneous dynamo action and magnetic instabilities FRANK STEFANI, GUNTER GERBETH, ANDRE GIESECKE, THOMAS GUNDRUM, OLEG KIRILLOV, MARTIN SEILMAYER, Helmholtz-Zentrum Dresden-Rossendorf, Germany, MARCUS GELLERT, GÜNTHER RÜDIGER, Leibniz-Institut fuer Astrophysik, Potsdam, Germany, AGRIS GAILITIS, Institute of Physics, Salaspils, Latvia — The present status of the Riga dynamo experiment is summarized and the prospects for its future exploitation are evaluated. We further discuss the plans for a large-scale precession driven dynamo experiment to be set-up in the framework of the new installation DRESDYN (DREsden Sodium facility for dynamo and thermohydraulic studies) at Helmholtz-Zentrum Dresden-Rossendorf. We report recent investigations of the magnetorotational instability and the Tayler instability and sketch the plans for another large-scale liquid sodium facility devoted to the combined study of both effects.

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